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Chen

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(54) **SEAT BACK RECLINER**

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(72) Inventor: **Jui-Lin Chen**, Tainan (TW)

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A47C 1/036 (2006.01)

(52) **U.S. Cl.**
CPC ***A47C 1/03216*** (2013.01); ***A47C 1/036*** (2013.01); ***A47C 1/03255*** (2013.01)

(58) **Field of Classification Search**
CPC . A47C 1/03216; A47C 1/03255; A47C 1/036; A47C 1/03205; A47C 1/03283
See application file for complete search history.

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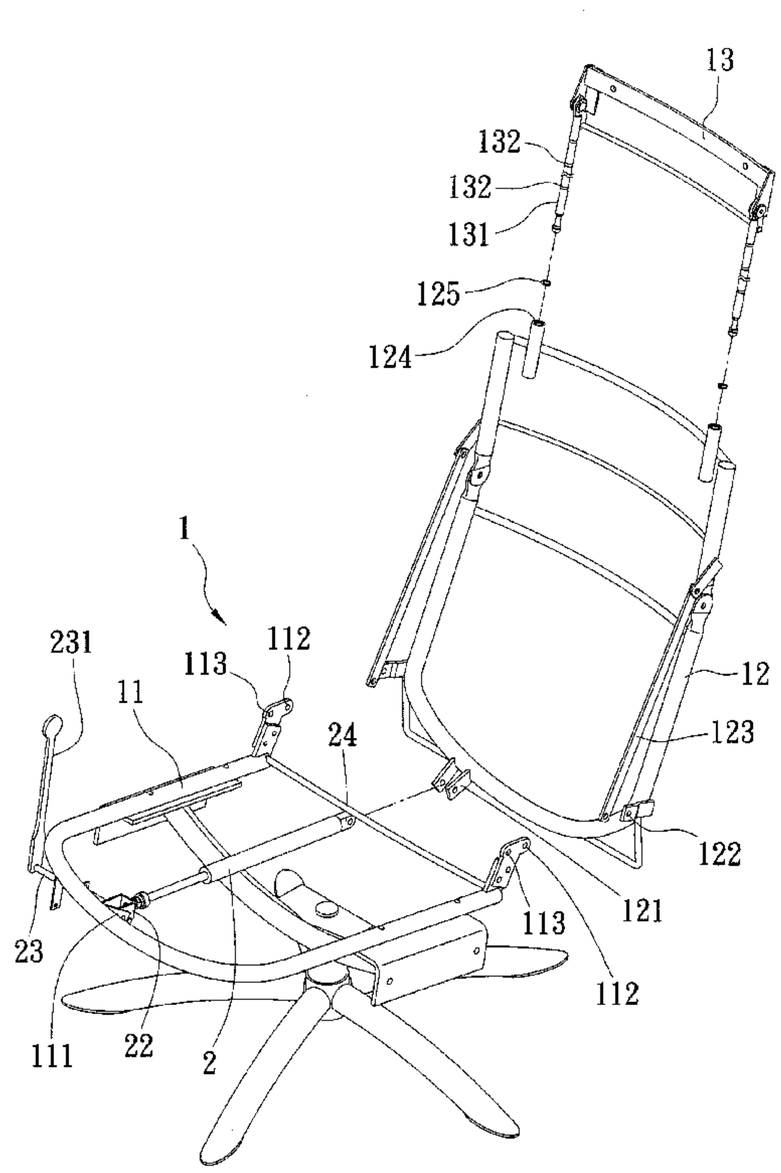
(57) **ABSTRACT**

A seat back recliner is revealed. A seat back is pivotally connected to and positioned on a rear end of a seat part of a chair while a cylinder is disposed between the seat part and the seat back. A reclined angle of the seat back is adjustable under control of the cylinder. Thereby a user sitting on the chair can directly adjust the seat back to the reclined angle required. The reclined seat back allows a user to lie back and have the greatest level of comfort and relaxation while sitting on the chair.

4 Claims, 9 Drawing Sheets



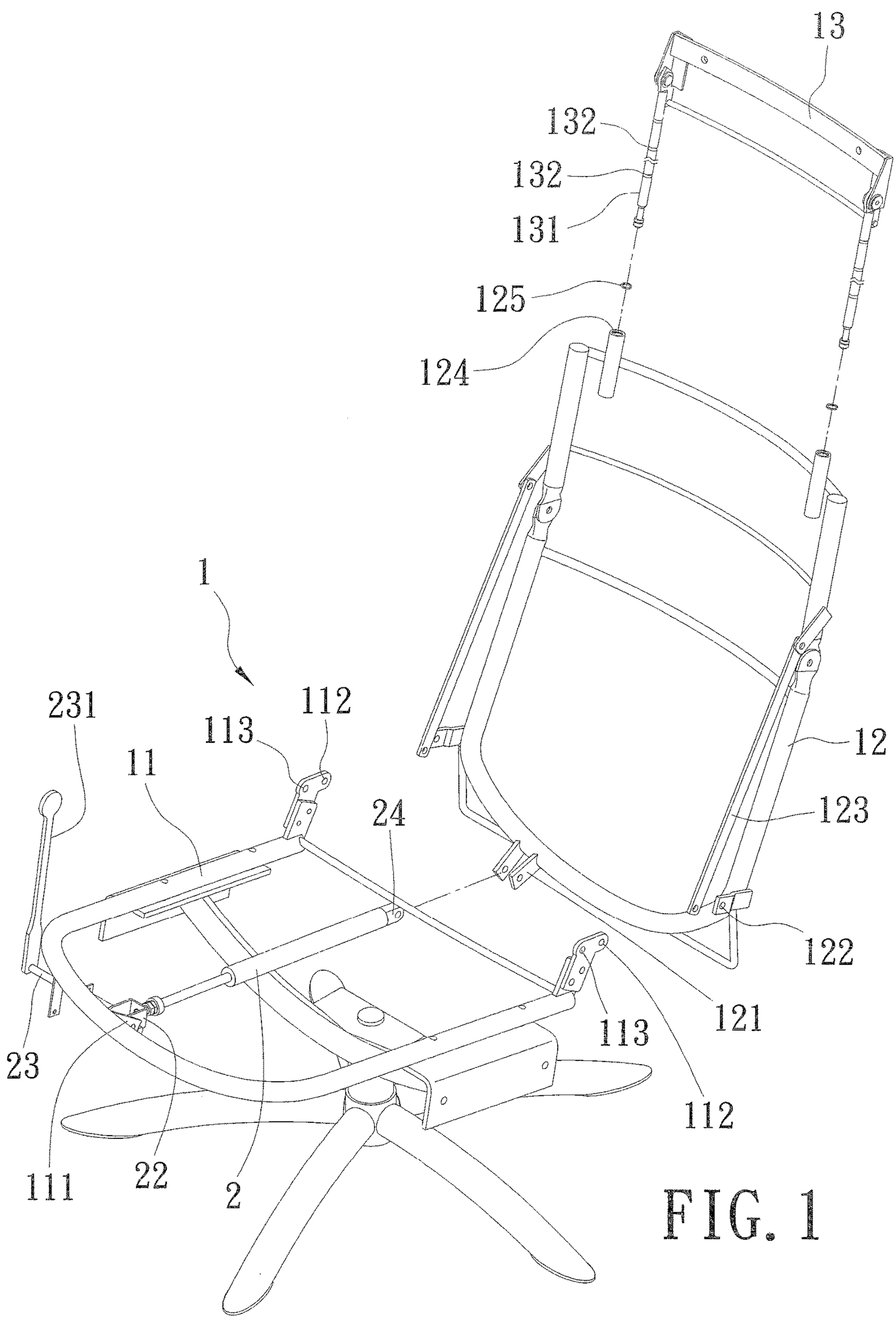

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FIG. 1

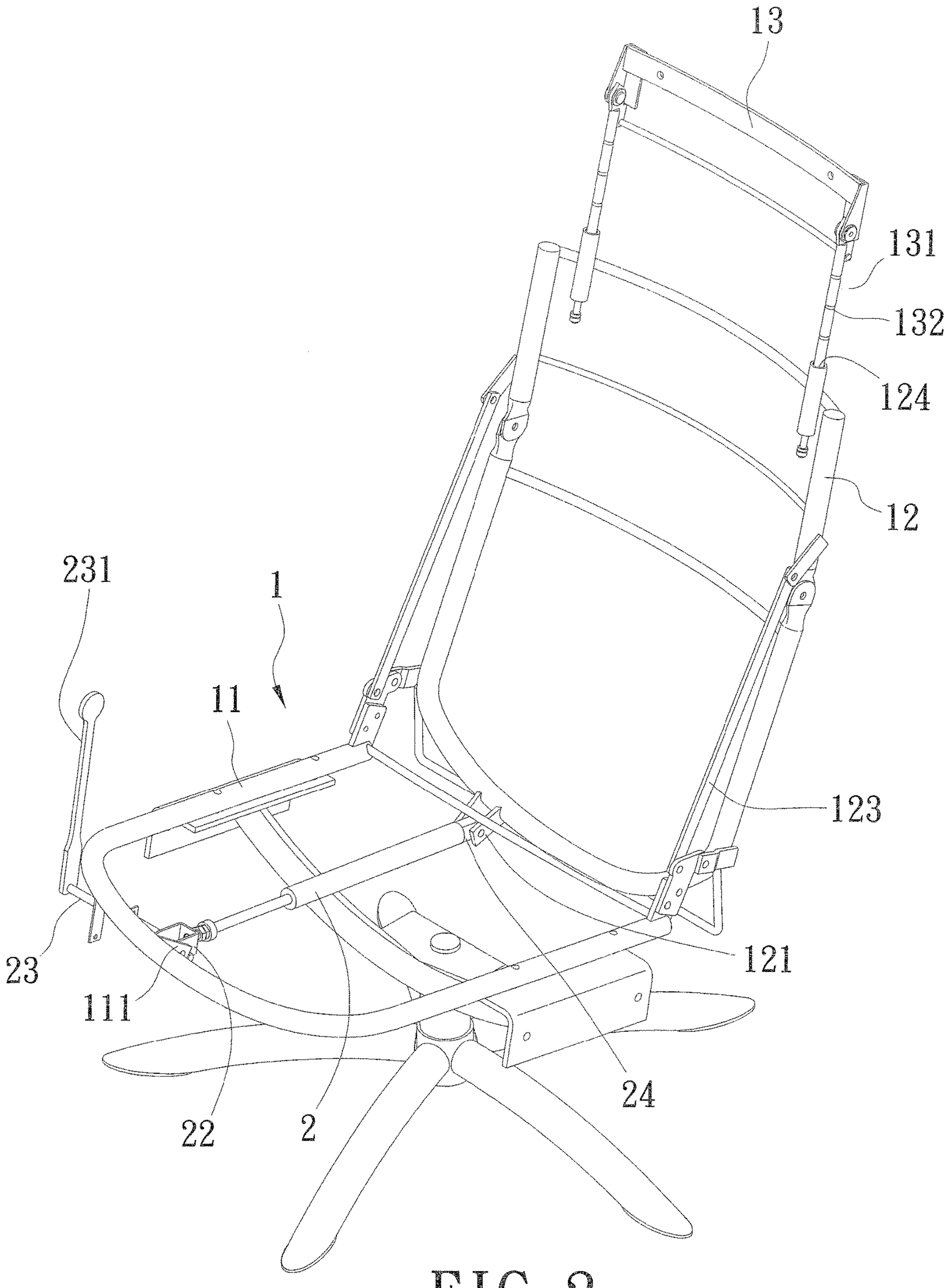

FIG. 2

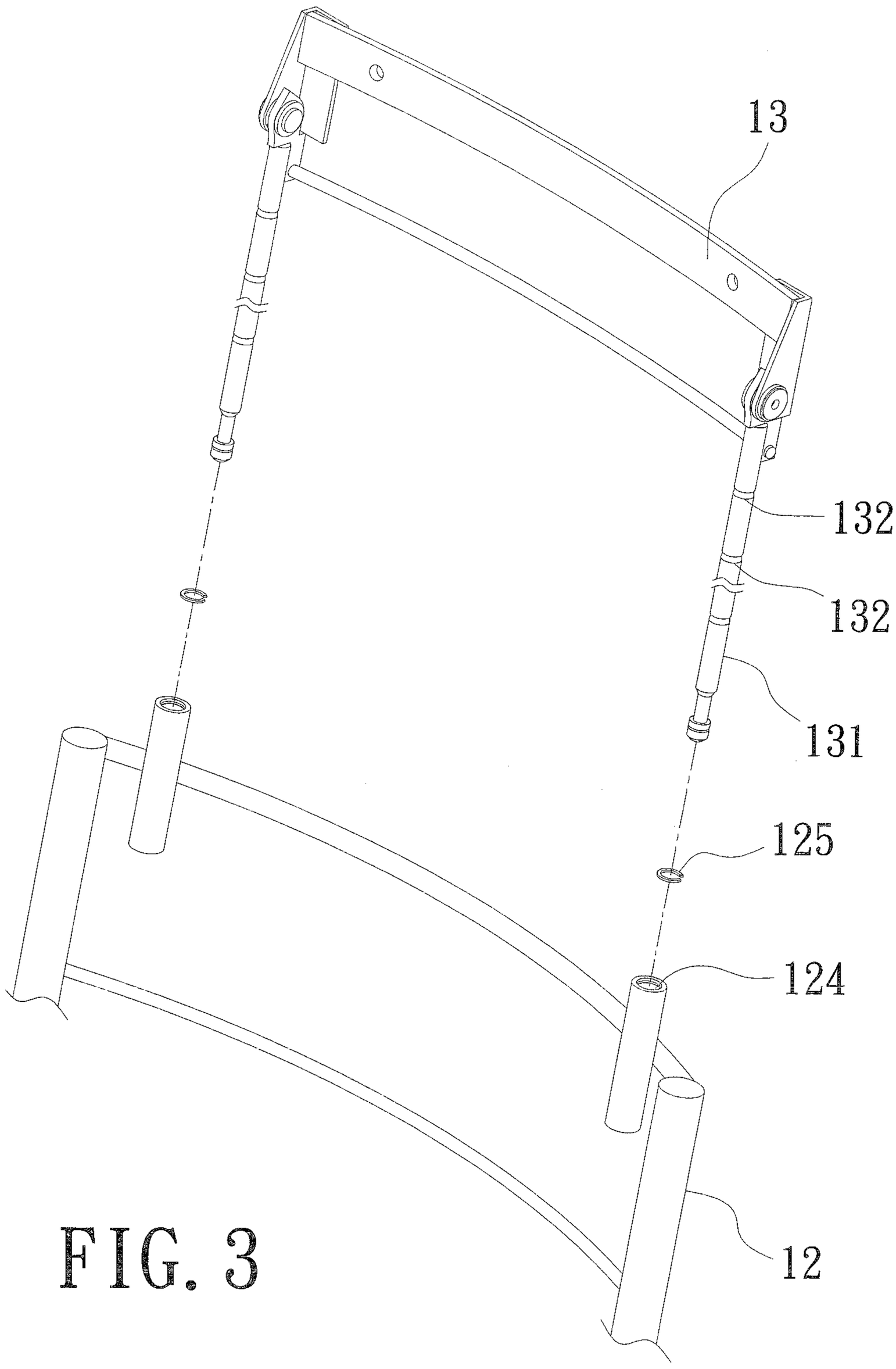

FIG. 3

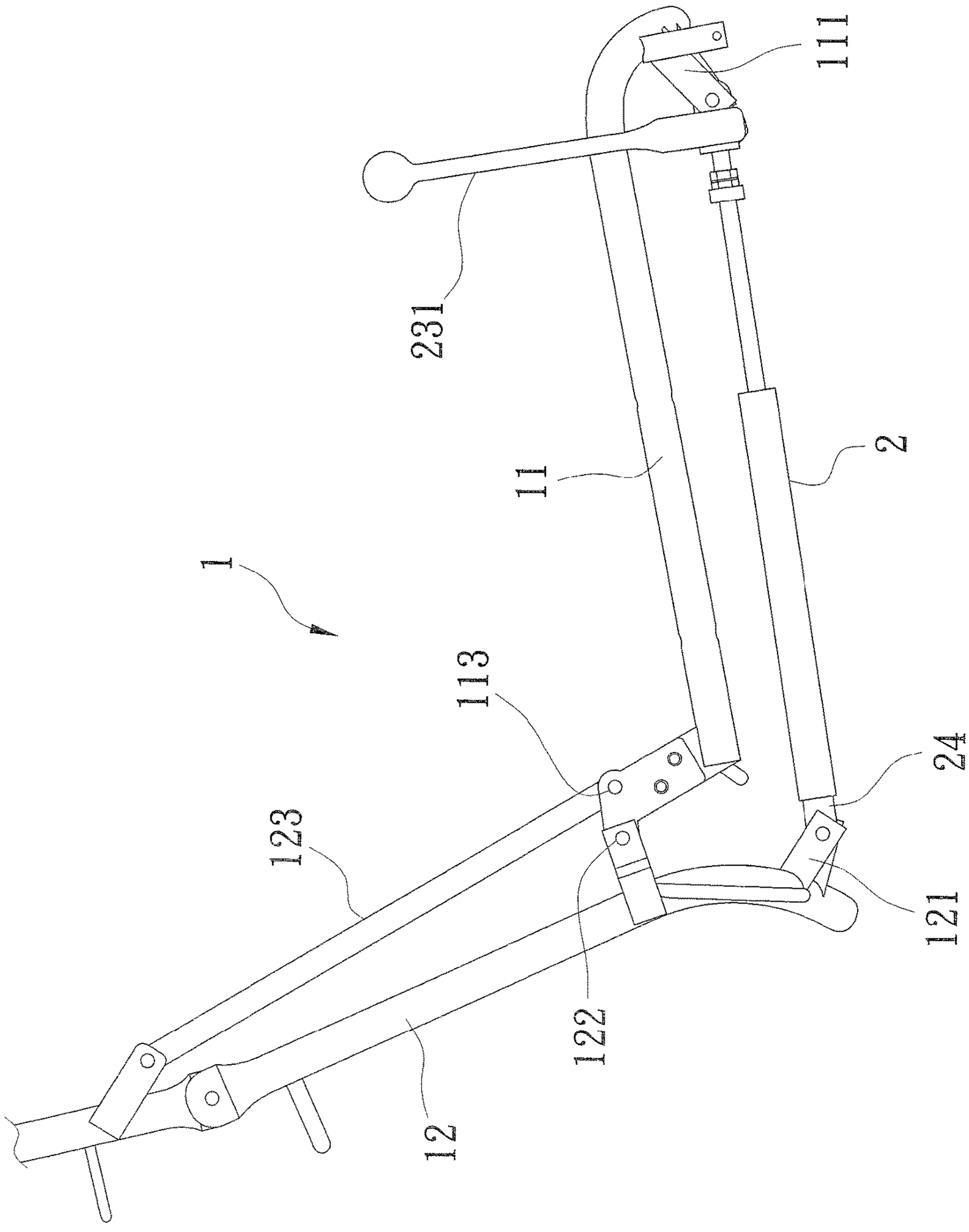

FIG. 4

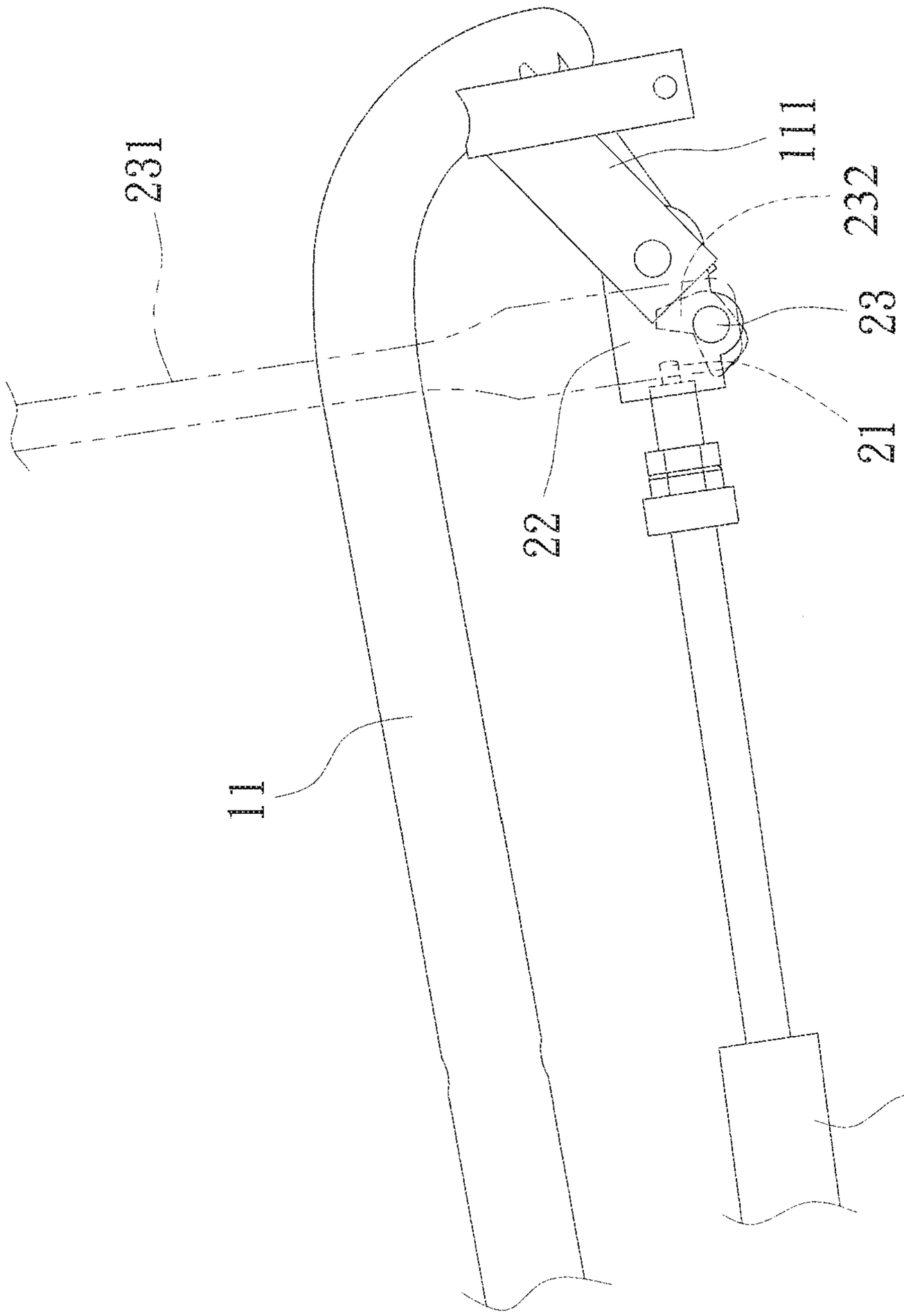

FIG. 5

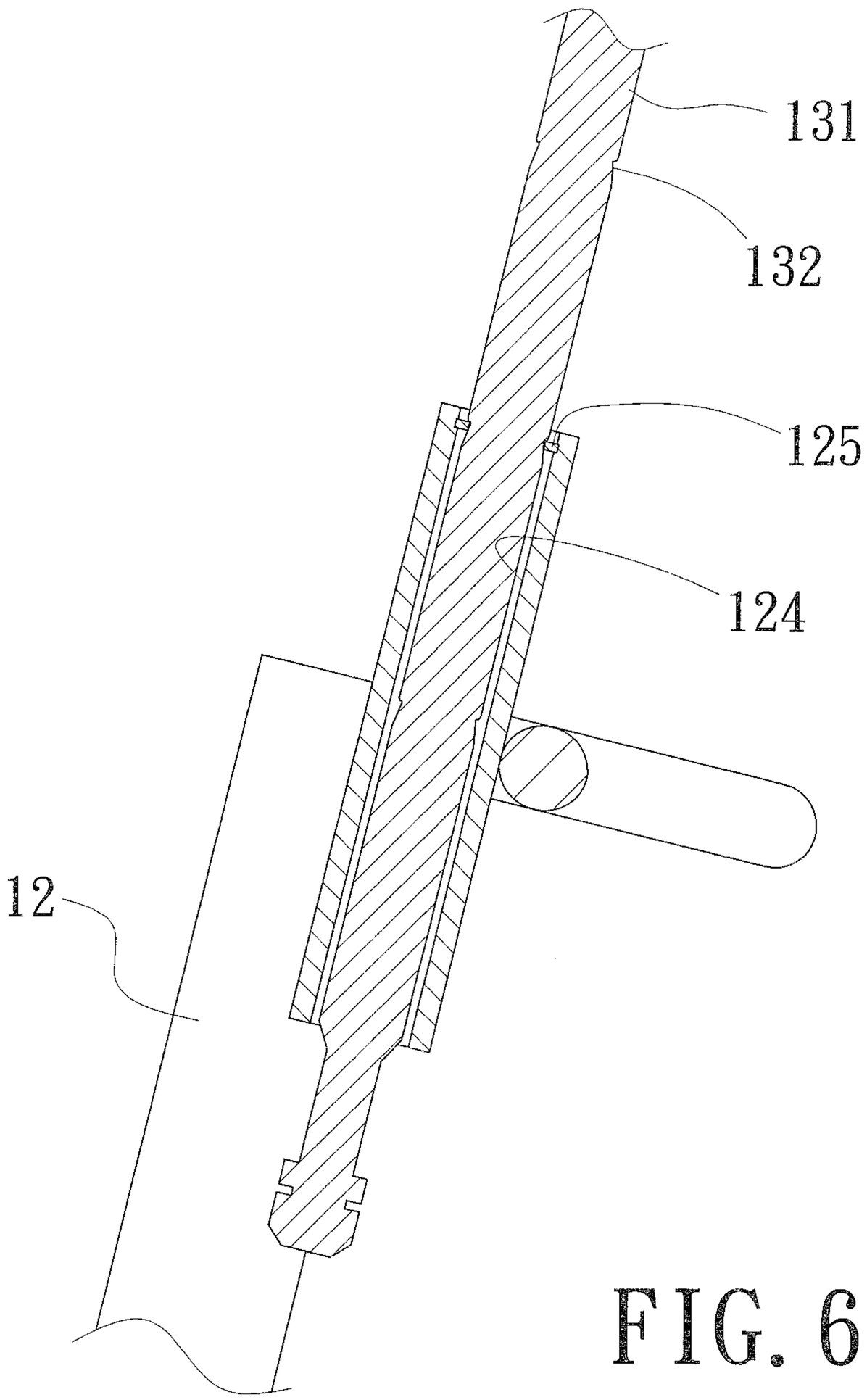

FIG. 6

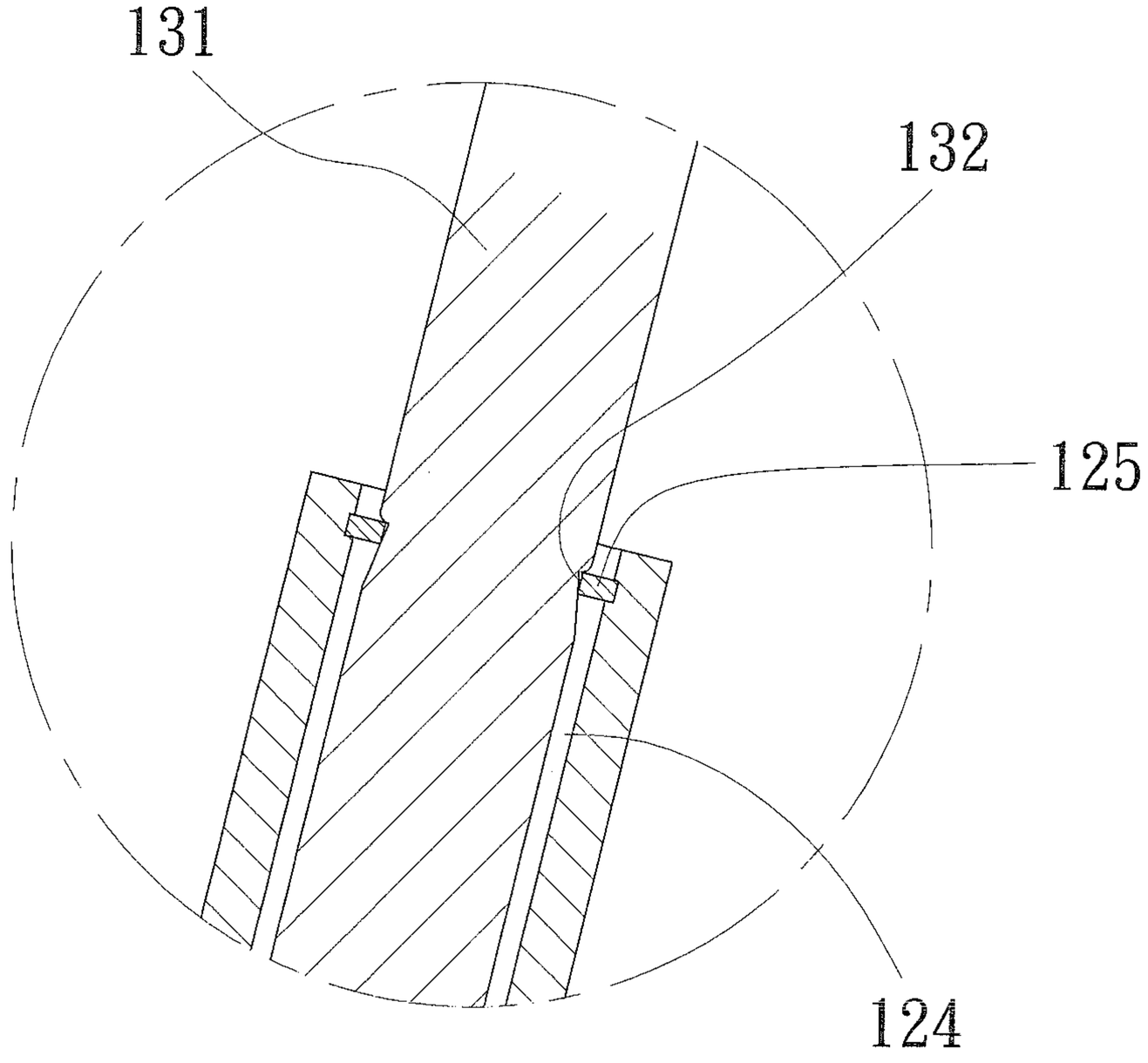

FIG. 7

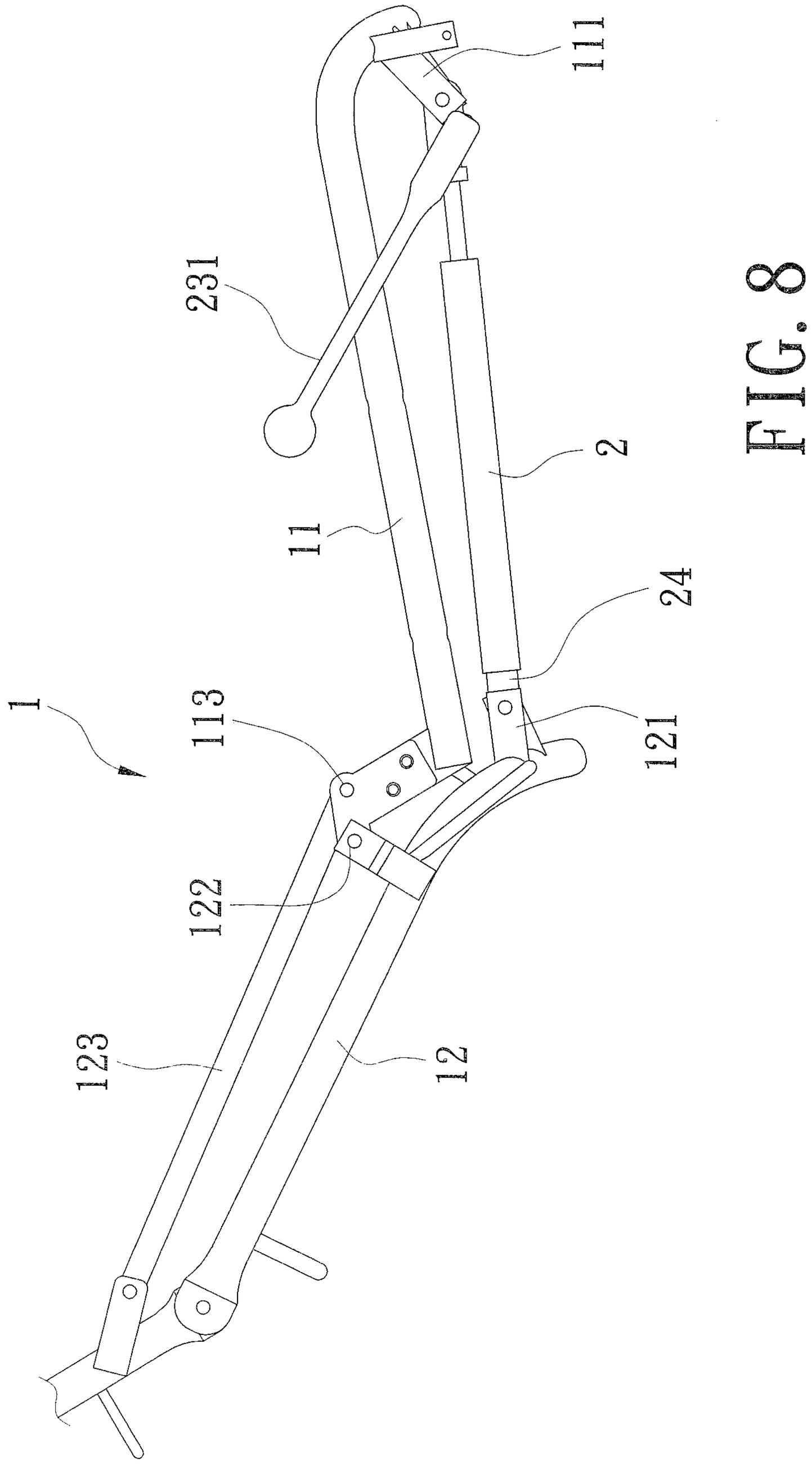

FIG. 8

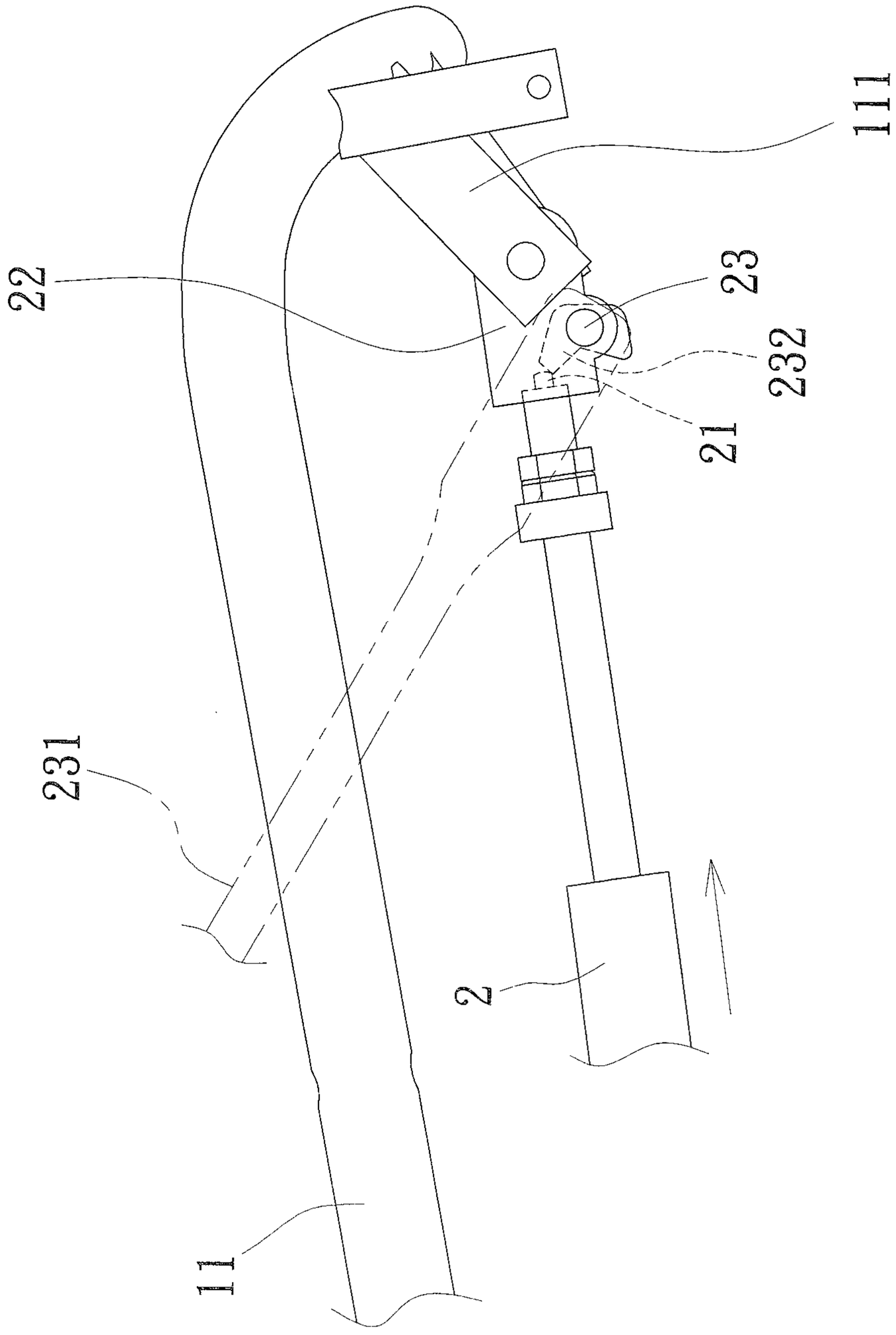

FIG. 9

SEAT BACK RECLINER

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a seat back recliner, especially to a seat back recliner that allows a user to adjust a seat back of a chair to the reclined angle required and gives comfort to the user's back while sitting on the chair. The seat back recliner provides greater comfort to a user.

Descriptions of Related Art

Due to rapid economic growth, people become healthy and their purchasing power is increased. Thus people start to buy various tools for a more comfortable and convenient living. A chair is one of their daily essentials. In early days, chairs are used to sit on. With improvement of material life and evolution of industrial technology, the chairs are modified to have difference designs and functions according to a user's requirements. The chairs with an ergonomic design give a user better comfort.

Although various chairs available now only offer better comfort and better posture, they have limits on easy adjustment of the reclined angle of the seat back for great comfort.

Thus there is room for improvement and a need to provide a seat back recliner that overcomes shortcomings mentioned above.

SUMMARY OF THE INVENTION

Therefore it is a primary object of the present invention to provide a seat back recliner that allows a user sitting on a chair to adjust a reclined angle of a seat back directly and gives comfort to the user's back. Thus the seat back tilted provides additional comfort to the user sitting on the chair.

In order to achieve the above object, a seat back recliner of the present invention includes a chair and a cylinder.

The chair is disposed with a seat part and an assembly unit is arranged at a center of a front end of the seat part while a pivot unit is set on each of two sides of a rear end of the seat part. A seat back is connected to the seat part and including a connection unit arranged at the center of the bottom end thereof. The bottom end of the seat back is set with pivot parts corresponding to the pivot units of the seat part. Thus the seat back and the seat part are positioned by the pivot parts and the pivot units pivotally connected.

A control part is disposed on the front end of the cylinder and an end part of the control part is connected to an assembly member. The assembly member is pivotally connected to the assembly unit of the seat part of the chair. A shaft rod is passed through the assembly member and an outer end of the shaft rod is extended to form a control end located outside the seat part of the chair while a leaning end is formed on an inner end of the shaft rod, located in the assembly member and corresponding to the control part of the cylinder. A connection part is formed on a rear end of the cylinder. The cylinder is pivotally connected to the connection unit of the seat back of the chair by the connection part thereof.

Two auxiliary pivot units corresponding to each other are arranged at two sides of a rear end of the seat part respectively. Two connecting rods are set on two sides of the seat back respectively and corresponding to the auxiliary pivot units of the seat part. The connecting rods are pivotally connected to the auxiliary pivot units respectively.

The cylinder is an oil cylinder.

The cylinder is an air cylinder.

Compared with conventional structure, the present invention features on direct adjustment of the reclined angle of the seat back and more comfort while a user sitting on the chair.

BRIEF DESCRIPTION OF THE DRAWINGS

The structure and the technical means adopted by the present invention to achieve the above and other objects can be best understood by referring to the following detailed description of the preferred embodiments and the accompanying drawings, wherein:

FIG. **1** is an explosive view of an embodiment according to the present invention;

FIG. **2** is a perspective view of an embodiment according to the present invention;

FIG. **3** is an explosive view of a headrest part of an embodiment according to the present invention;

FIG. **4** is a schematic drawing showing a side view of a cylinder being assembled of an embodiment according to the present invention;

FIG. **5** is a partial enlarged side view of a cylinder being assembled of an embodiment according to the present invention;

FIG. **6** is a longitudinal cross sectional view of a headrest assembled with a seat back of an embodiment according to the present invention;

FIG. **7** is a partial enlarged view of a longitudinal cross section of headrest assembled with a seat back of an embodiment according to the present invention;

FIG. **8** is a schematic drawing showing a side view of a cylinder in use of an embodiment according to the present invention;

FIG. **9** is a schematic drawing showing a partial enlarged side view of a cylinder in use of an embodiment according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Refer to FIG. **1** and FIG. **2**, a seat back recliner of the present invention mainly includes a chair **1** and a cylinder **2**.

The chair **1** consists of a seat part **11**, a seat back **12**, and a headrest part **13**. An assembly unit **111** is disposed on a center of a front end of the seat part **11** while a pivot unit **112** and an auxiliary pivot unit **113** are arranged at each of two sides of a rear end of the seat part **11**. The seat back **12** is connected to the seat part **11** and is composed of a connection unit **121**, two pivot parts **122**, two connecting rods **123**, a pair of insertion holes **124**, and two positioning rings **125**. The connection unit **121** is arranged at the center of the bottom end of the seat back **12**. The pivot parts **122** are set on the bottom end of the seat back **12** and corresponding to the pivot units **112** of the seat part **11**. Thus the seat back **12** and the seat part **11** are connected and positioned by the pivot parts **122** and the pivot units **112** pivotally connected. The connecting rods **123** are set on two sides of the seat back **12** and corresponding to the auxiliary pivot units **113** of the seat part **11**. The connecting rod **123** is pivotally connected to the auxiliary pivot unit **113** of the seat part **11** for increasing supporting force of the seat back **12**. Moreover, refer to FIG. **3**, the insertion holes **124** are formed on a top end of the seat back **12** and the positioning ring **125** is fixed in the insertion hole **124**. The headrest part **13** is disposed over the seat back **12**. Two insertion pins **131** are projecting from the headrest part **13** and corresponding to the insertion

holes **124** respectively. A plurality of positioning grooves **132** corresponding to the positioning ring **125** is formed on the insertion pin **131**.

The cylinder **2** can be an oil cylinder or an air cylinder. Refer to FIG. **4** and FIG. **5**, the cylinder **2** is composed of a control part **21**, an assembly member **22**, a shaft rod **23**, and a connection part **24**. The control part **21** is disposed on the front end of the cylinder **2**. An end part of the control part **21** is connected to the assembly member **22** while the assembly member **22** is pivotally connected to the assembly unit **111** of the chair **1**. The shaft rod **23** is passed through the assembly member **22** and an outer end of the shaft rod **23** is extended to form a control end **231** located outside the seat part **11** of the chair **1** while a leaning end **232** is formed on an inner end of the shaft rod **23**, located in the assembly member **22** and corresponding to the control part **21** of the cylinder **2**. As to the connection part **24**, it is formed on a rear end of the cylinder **2**. The cylinder **2** is pivotally connected to the connection unit **121** of the seat back **12** of the chair **1** by the connection part **24**.

Also refer to FIG. **6** and FIG. **7**, the insertion pin **131** of the headrest part **13** of the chair **1** is mounted into the insertion hole **124** of the seat back **12** correspondingly and is positioned by the positioning ring **125** in the insertion hole **124** being mounted into the positioning groove **132** of the insertion pin **131** correspondingly while in use. Due to the plurality of positioning grooves **132** on the insertion pin **131**, the multi-stage adjustment of the height of the headrest part **13** relative to the top end of the seat back **12** is achieved. After adjustment, the insertion pins **131** of the headrest part **13** at the proper height are positioned by the positioning ring **125** in the insertion hole **124** being locked into the positioning groove **132**.

Refer to FIG. **8** and FIG. **9**, when a user intends to adjust the reclined angle of the seat back **12** of the chair **1**, the control end **231** of the shaft rod **23** is pulled by a user. Then the shaft rod **23** is driven to rotate by the control end **231** so that the leaning end **232** of the shaft rod **23** is pressed against the control part **21** of the cylinder **2**. Thus the cylinder **2** is adjustable and the seat back **12** is able to be reclined relative to the rear end of the seat part **11**. After completing the adjustment, the control end **231** is pulled again for driving the shaft rod **23** to rotate. Thus the leaning end **232** of the shaft rod **23** is no more pressed against the control part **21** of the cylinder **2**. Therefore the cylinder **2** is in the fixed state and the seat back **12** is positioned, unable to be adjusted.

In summary, the seat back recliner of the present invention allows a user sitting on the chair to directly adjust the reclined angle of the seat back compared with the structure available now. The reclined seat back allows a user to lie back and have the greatest level of comfort and relaxation while sitting on the chair.

Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details, and representative devices shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents.

What is claimed is:

1. A seat back recliner comprising:

a chair and a cylinder;

wherein the chair includes a seat part and a seat back connected to the seat part; an assembly unit is arranged at a center of a front end of the seat part with a pivot unit set on each of two sides of a rear end of the seat part; a connection unit is arranged at a center of a bottom end of the seat back and pivot parts corresponding to the pivot units of the seat part are set on the bottom end of the seat back; and the pivot parts are pivotally connected to the pivot units to position the seat back relative to the seat part; a plurality of connecting rods each pivotally connected to both the seat back and the seat part and extending therebetween;

wherein the cylinder is disposed with a control part on a front end thereof connected to an assembly member; the assembly member is pivotally connected to the assembly unit of the seat part of the chair; a shaft rod is passed through the assembly member and an outer end of the shaft rod is extended to form a control end located outside the seat part of the chair with a leaning end formed to extend transversely from an inner end of the shaft rod, the leaning end being located in the assembly member to selectively actuate the control part of the cylinder responsive to rotation of the shaft rod; and a connection part is formed on a rear end of the cylinder pivotally connected to the connection unit of the seat back of the chair.

2. The seat back recliner as claimed in claim **1**, wherein two auxiliary pivot units corresponding to each other are arranged at the two sides of the rear end of the seat part respectively; two of the connecting rods are set on two sides of the seat back pivotally connected to the auxiliary pivot units respectively.

3. The seat back recliner as claimed in claim **1**, wherein the cylinder is an oil cylinder.

4. The seat back recliner as claimed in claim **1**, wherein the cylinder is an air cylinder.

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